CHAPTER 5
SPECIFIC STANDARDS

5.01 Application

The minimum floodplain development standards listed in this chapter apply to the floodway/floodway fringe portions of the 100-year floodplain as delineated on the Gallatin County Floodway and Flood Boundary Maps, the Flood Insurance Rate Map Community Panel Numbers (300028 0001-0021) for areas outside the corporate limits of the City of Bozeman and also correspond to the numbered A zones depicted on the Gallatin County Flood Insurance Rate Maps, and those areas of the East Gallatin River and Upper Tributaries Flood Hazard Analyses prepared by the United States Department of Agriculture Soil Conservation Service, dated July, 1972.

(Amended County Resolution 1999-78 on December 7, 1999.)

5.02 Floodway

A. Uses Allowed Without Permits The following open space uses shall be allowed without a permit anywhere within the floodway, provided that such uses conform to the provisions of Chapter VII of these Regulations, are not prohibited by any other ordinance, resolution or statute and do not require fill, excavation, permanent storage of materials or equipment or structures other than portable structures:

1. Agricultural uses;

2. Accessory uses such as loading or parking areas, or emergency landing strips associate with industrial-commercial facilities;

3. Private and public recreational uses such as golf courses, driving ranges, archery ranges, picnic grounds, boat-launching ramps, parks, wildlife management and natural areas, game farms, fish hatcheries, shooting preserves, target ranges, trap and skeet ranges, hunting and fishing areas, and hiking or horseback riding trails;

4. Forestry, including processing of forest projects with portable equipment;

5. Residential uses such as lawns, gardens, parking areas and play areas;

6. Irrigation and livestock supply wells, provided that they are located at least five hundred (500) feet from domestic water supply wells; (and)

7. Fences, except permanent fences crossing channels.

8. Storage of recreational vehicles provided that they be on the site for fewer than 180 consecutive days, or be fully licensed and ready for highway use. A recreational vehicle is ready for highway use if it is on its wheels or jacking system with wheels intact, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions.

B. Uses Requiring Permits The following artificial obstructions and non-conforming uses may be permitted in the floodway subject to the issuance of a permit by the Floodplain Administrator:

1. Excavation of material from the pits and pools provided that:

   a. a buffer strip of undisturbed land of sufficient width to prevent flood flows from channeling into the excavation is left between the edge of the channel and edge of the excavation;

   b. the excavation meets all applicable laws and regulations of other local and state agencies; and

   c. excavated material is stockpiled outside the floodway.

2. Railroad, highway and street stream crossings provided the crossings are designed to offer minimal obstruction to flood flow. Stream crossings shall not increase the elevation of the 100-year flood more than one-half foot nor cause a significant increase in flood velocities.

3. Limited filling for highway, street and railroad embankments not associated with stream crossings, provided that:

   a. reasonable alternative transportation routes outside the designated floodway are not available; and

   b. such floodway encroachment is located as far from the stream channel as possible and shall not result in a cumulative increase in base flood elevations, after allowable encroachments into the floodway fringe, exceeding one-half foot.

4. Buried or suspended utility transmission lines, provided that:

   a. suspended utility transmission lines are designed such that the lowest point of the suspended line is at least six (6) feet higher than the base flood elevation;

   b. towers and other appurtenant structures are designed and placed to withstand and offer minimal obstruction to flood flows; and

   c. utility transmission lines carrying toxic or flammable materials are buried to a depth at least twice the calculated maximum depth of scour for a flood of 100-year frequence. The maximum depth of scour may be determined from any of the accepted hydraulic engineering methods, but the final calculated figure shall be subject to approval by the Floodplain Administrator.

5. Storage of materials and equipment, provided that:

a. the material or equipment is not subject to major damage by flooding and is properly anchored to prevent flotation or downstream movement; or,

b. the material or equipment is readily removable within the limited time available after flood warning. Storage of flammable, toxic or explosive materials shall not be permitted.

6. Domestic water supply wells, provided that:

a. they are driven or drilled wells located on ground higher than the surrounding ground to assure positive drainage from the well;

b. well casings are water tight to a distance of at least twenty five (25) feet below the ground surface;

c. water supply and electrical lines have a watertight seal where the lines enter the casing;

d. all pumps, electrical lines and equipment are either of the submersible type or are adequately flood-proofed; and

e. check valves are installed on main water lines at wells and all building entry locations.

7. Buried and sealed vaults for sewage disposal in recreational areas, provided that they meet applicable laws and standards administered by the Montana Department of Health and Environmental Sciences.

8. Public or private campgrounds, and recreational vehicle parks or campgrounds provided that:

a. access roads require only limited fill and do not obstruct or divert flood waters; and

b. Recreational vehicles and travel trailers are not in place more than 180 consecutive days and are licensed and ready for highway use. They are ready for highway use if on wheels or jacking system with wheels intact, are attached to the site with only quick disconnect type utilities and securing devices, and have no permanently attached additions.

9. Structures accessory to the uses permitted in this Section such as boat docks, marinas, sheds, picnic shelters, tables and toilets, provided that:

a. the structures are not intended for human habitation;

b. the structures will have a low flood damage potential;

c. the structures will, insofar as possible, be located on ground higher than the surrounding ground and as far from the channel as possible;

d. the flood-proofing standards of Chapter VII are met; and,

e. the structures will be constructed and placed so as to offer a minimal obstruction to flood flows and are anchored to prevent flotation.

10. Substantial improvements to any structure provided that the provisions of Section 5.03-B.3. and Section 5.03-B.4. or 5.03-B.5 of these regulations are met. In the floodway the structure must be flood-proofed or elevated on a permanent foundation rather than on fill.

11. All other artificial obstructions, substantial improvements or non-conforming uses not specifically listed in, or prohibited by, these Regulations.

C. Permits for Flood Control Works Flood control works shall be allowed within floodways subject to the issuance of a permit by the Floodplain Administrator with the following conditions:

l. Levees and floodwalls are permitted if:

a. the proposed levee or floodwall is designed and constructed to safely convey a flood of 100-year frequency; and,

b. the cumulative effect of the levee or floodwall combined with allowable floodway fringe encroachments does not increase the unobstructed elevation of the flood of 100-year frequency. The Floodplain Administrator may establish either a lower or higher permissible increase in the elevation of the flood of 100-year frequency for individual levee projects, with concurrence of the Montana Department of Natural Resources and Conservation and the Federal Emergency Management Agency based upon the following criteria:

1. the estimated cumulative effect of other reasonable anticipated future permissible uses; and,

2. the type and amount of existing flood-prone development in the affected area.

c. the proposed levee or floodwall, except those to protect agricultural land only, are constructed at least three (3) feet higher than the base flood.

2. Riprap, except that which is hand-placed, if:

a. the riprap is designed to withstand a flood of 100-year frequency;

b. the riprap does not increase the elevation of the flood of 100-year frequency; and,

c. the riprap will not increase erosion upstream, downstream, or adjacent to the riprap site.

3. Channelization projects if they do not significantly increase the magnitude, velocity or elevation of the flood of 100-year frequency in the proximity of the project.

4. Dams, provided that:

a. they are designed and constructed in accordance with the Montana Dam Safety Act approved safety standards; and,

b. they will not increase flood hazards downstream, either through operational procedures or improper hydrologic design.

D. Permits for Water Diversions: Permits for the establishment of a water diversion or change in place of diversion shall not be issued if, in the judgement of the Floodplain Administrator:

1. the proposed diversion will increase the upstream base flood elevation to the detriment of neighboring property;

2. the proposed diversion is not designed and constructed to minimize potential erosion from a flood of 100-year frequency; and,

3. any permanent diversion structure crossing the full width of the stream channel is not designed and constructed to safely withstand up to a flood of 100-year frequency.

E. Prohibited Uses. The following artificial obstructions and non-conforming uses are prohibited within the floodway:

1. New construction and alterations of any, residential, commercial, or industrial structure;

2. Encroachments, including fill, new construction, substantial improvements, and other development within the adopted regulatory floodway that would result in erosion of embankment, obstruction of the natural flow of waters, or increase in flood levels within the community during the occurrence of the flood of 100-year frequency.

3. The construction of permanent storage of an object subject to flotation or movement during flood level periods;

4. Solid and hazardous waste disposal, water distribution systems, and sewage treatment and/or disposal systems, except as allowed or approved under the laws and standards administered by the Montana Department of Health and Environmental Sciences; and,

5. Storage of highly toxic, flammable or explosive materials.

6. Alterations of structures unless it can be shown the alteration won't raise flood heights;

7. Manufactured homes.

5.03 Floodway Fringe

A. Uses Allowed Without Permits. All uses allowed in the floodway, according to the provisions of Section 5.02 A of these Regulations, shall also be allowed without a permit in the floodway fringe. In addition, individual or multiple family subsurface sewage disposal systems are allowed only when they are reviewed and approved under laws and regulations administered by the Department of Health and Environmental Sciences or the local health board.

B. Uses Requiring Permits. All uses allowed in the floodway subject to the issuance of a permit, according to the provisions of Section 5.02 B (and Section 5.02 C) of these Regulations, shall also be allowed by permit within the floodway fringe. In addition, new construction, substantial improvements and alterations to structures, including but not limited to residential, commercial and industrial construction and suitable fill shall be allowed by permit from the Floodplain Administrator subject to the following conditions:

1. Such structures or fill must not be prohibited by any other statute, regulation, ordinance or resolution;

2. Such structures or fill must be compatible with local comprehensive plans;

3. The new construction, alterations and substantial improvements of residential structures including manufactured homes must be constructed on suitable fill such that bottom floor elevations are two (2) feet or more above the base flood elevation of the. The suitable fill shall be at an elevation no lower than the and shall extend for at least fifteen (15) feet, at that elevation, beyond the structures in all directions;

4. The new construction, alteration and substantial improvement of commercial and industrial structures must be either constructed on suitable fill, as specified in Section 5.03-B.3 of these Regulations, or be adequately flood-proofed to an elevation no lower than two (2) feet above the elevation of the base flood elevation of the flood of 100-year frequency. Flood-proofing shall be accomplished in accordance with Chapter VII of these Regulations and shall further include impermeable membranes or materials for floor and walls, water-tight enclosures for all window, doors, and other openings, and be certified by a registered professional engineer or architect that the flood-proofing methods are adequate to withstand the flood depths, pressures, velocities, impact and uplift forces associated with the flood of 100-year frequency;

a. If the structure is designed to allow internal flooding of areas below the lowest floor, use of this space shall be limited to parking, loading areas, building access, and storage of equipment or materials not appreciably affected by flood waters. The floors and walls shall be designed and constructed of materials resistant to flooding to an elevation no lower than two feet above the base flood elevation. Walls shall be designed automatically equalize hydrostatic forces by allowing for entry and exit of floodwaters. Openings may be equipped with screens, louvers, valves, other coverings, or devices which permit the automatic entry and exit of floodwaters.

b. Structures whose lowest floors are used for a purpose other than parking, loading, or storage of materials resistant to flooding shall be flood-proofed to an elevation no lower than two feet above the base flood elevation. Flood-proofing shall include impermeable membranes or materials for floors and walls and watertight enclosures for all windows, doors, and other openings. These structures shall also be designed to withstand the hydrostatic, hydrodynamic, and buoyancy effects of a 100-year flood.

c. Flood-proofing of electrical, heating, and plumbing systems shall be accomplished in accordance with Chapter VII of these regulations.

5. A development proposed for 100-year floodplain, where water surface elevations are available but no floodway is delineated, may not significantly increase flood velocities or depths or generally alter patterns of flood flow. The Floodplain Administrator may require a permit applicant to furnish additional hydraulic data before acting on a permit application for such a floodplain. The data may include, but are not limited to, any of the following:

   a. a hydraulic study documenting probable effect on upstream or downstream property owners caused by the proposed development; or,

   b. the calculated increase in the 100-year frequency water surface profile caused by the proposed development.

   Permits for such proposed development may be modified or denied if the additional information shows that the proposed use would cause an additional flood hazard to adjacent property or significantly increase flood heights. A significant increase in flood heights is to be one-half (1/2) foot unless existing or anticipated development in the area dictates a lesser value of allowable increase.

   Also, 100-year water surface profile data shall be provided for subdivision proposals and other proposed developments that contain at least fifty (50) lots or five (5) acres (whichever is less);

6. All manufactured homes placed in the floodway fringe must have the chassis securely anchored to a foundation system that will resist floatation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, over-the-top or from ties to ground anchors. The following conditions also apply;

   a. When a manufactured home is 1) altered, 2) replaced because of substantial damage as a result of a flood, or 3) replaced on an individual site, the lowest floor must be elevated two feet above the base flood elevation. The home can be elevated on fill or raised on a permanent foundation of reinforced concrete, reinforced mortared block, reinforced piers, or other foundation elements of at least equivalent strength.

   b. Replacement or substantial improvements of manufactured homes in an existing manufactured home park or subdivision must be raised on a permanent foundation. The lowest floor must be two feet above the base flood elevation. The foundation must consist of reinforced concrete, reinforced mortared block, reinforced piers, or other foundation elements of at least equivalent strength.

   c. Manufactured homes proposed for use as commercial or industrial structures must be elevated and anchored, rather than flood-proofed;

7. Fill material placed in the floodway fringe must be stable, compacted, well graded, pervious, generally unaffected by water and frost, devoid of trash or similar foreign matter, devoid of tree stumps or other organic material, and appropriate for the purpose of supporting the intended use and/or permanent structure.

8. Roads, streets, highways, and rail lines shall be designed to minimize increase in flood heights. Where failure or interruption of transportation facilities would result in danger to the public health or safety, the facility shall be located two (2) feet above the base flood elevation;

9. Agricultural structures that have a low damage potential, such as sheds, barns, shelters, and hay or grain storage structures must be adequately anchored to prevent flotation or collapse; and all electrical facilities shall be placed above the base flood elevation; and

10. Recreational vehicles, if they are on the site for more than 180 consecutive days are not ready for highway use, must meet the elevating requirements of Section 5.03-B.3.

C. Prohibited Uses The following artificial obstructions and non-conforming uses are prohibited within the floodway fringe:

   1. Solid and hazardous waste disposal; and

2. Storage of highly toxic, flammable, or explosive materials. Storage of petroleum products may be allowed by permit if stored on compacted fill at least two feet above the base flood elevation and anchored to a permanent foundation to prevent downstream movement.

5.04 Floodplain Areas with Flood Elevations and No Delineated Floodway

A. A development proposed for a 100-year floodplain, where water surface elevations are available but no floodway is delineated, may not significantly increase flood velocities of depths or generally alter patterns of flood flow. The provisions of Section 5.03, Floodway Fringe, shall apply to these areas. The Floodplain Administrator may require a permit applicant to furnish additional hydraulic data before acting on a permit application for such a floodplain. The data may include, but are not limited to, any of the following:

1. a hydraulic study documenting probable effect on upstream, downstream, or adjacent property owners caused by the proposed development; or

2. the calculated increase in the 100-year flood water surface profile caused by the proposed development.

B. Permits for such proposed development may be modified or denied if the additional information shows that the proposed use would cause and additional flood hazard to adjacent property or significantly increase flood heights. A significant increase in flood heights is one-half foot unless existing or anticipated development in the area dictates a lesser amount of allowable increase.

5.05 Shallow Flooding (AO Zones)

A. Shallow flooding areas are delineated as A O Zone floodplains on the Gallatin County Flood Insurance Rate Maps. The provisions of Section 5.03, (Floodway Fringe) of these Regulations shall apply to A O Zone floodplains, (including Section 5.03-B.5. of these Regulations.) The flooding depth of 100-year frequency is indicated as the depth number on the Flood Insurance Rate Maps and shall be referenced to the crown of the nearest street or stream flow line in determining fill and/or flood-proofing heights which are to be utilized in applying the provisions of Section 5.03-B.3. and Section 5.03-B.4. of these regulations. In the absence of depth or elevation information, a minimum 2 foot flood depth shall be used.

1. Floodplain Boundary Interpretation. The Floodplain Administrator shall make interpretations where needed, as to the exact location of an A O Zone floodplain boundary when there appears to be a conflict between a mapped boundary and actual field conditions.